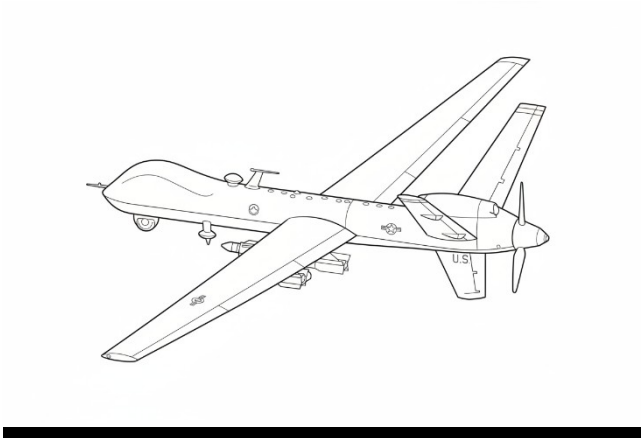
MQ-9 Reaper



IDENTITY & DESIGNATION

Official Designation: MQ-9A Reaper (formerly Predator B)
Manufacturer: General Atomics Aeronautical Systems, Inc. (San Diego, CA, USA)
Country of Origin: United States
Year Introduced: 2007 (IOC)
Proliferation Status: US, UK, France, Italy, Netherlands, Spain, and others

CLASSIFICATION

Domain: Air
Category: Military — MALE/HALE class
Sub-Category: Long-endurance hunter-killer ISR/Strike UAV
Terminal Mode: Recoverable

PHYSICAL SPECIFICATIONS

Weight: ~4,760 kg (max takeoff)
Wingspan: 20 m (66 ft)
Length: 11 m (36 ft)
Payload Capacity: 1,746 kg (internal + external)

PROPULSION & PERFORMANCE

Propulsion Type: Honeywell TPE331-10 turboprop (950 shp)
Max Speed: 482 km/h
Cruise Speed: ~313 km/h
Max Range: 1,852 km (combat radius)
Endurance: 27+ hours
Service Ceiling: 15,240 m (50,000 ft)

GUIDANCE, NAVIGATION & CONTROL

Control Link: Ku-band SATCOM (BLOS) + C-band LOS
Navigation: GPS/INS with military-grade SAASM
Satellite Link: Yes — enables global operations beyond line-of-sight
Autonomy Level: Semi-autonomous flight; human-in-loop for weapons employment
Operator Skill: Expert — Full military certification; crew: rated pilot + sensor operator + mission coordinator
Fiber-Optic Option: No (but SATCOM provides equivalent link resilience)

WEAPONS & PAYLOADS

Hardpoints: 7 (2 inboard, 2 mid-wing, 2 outboard, 1 centerline)
Primary Munitions: AGM-114 Hellfire (laser/radar guided), GBU-12 (laser-guided bomb), GBU-38 JDAM (GPS-guided)
Additional: AIM-9X Sidewinder (air-to-air), GBU-49 (dual-mode GPS/laser)
ISR Sensor: Raytheon MTS-B multi-spectral targeting system (EO/IR/laser designator/illuminator)
SIGINT: Optional signals intelligence pods

COUNTERMEASURE VULNERABILITY PROFILE

RF Jamming: LOW — Encrypted SATCOM + LOS redundancy; military-grade anti-jam
GPS Spoofing: LOW — Military SAASM GPS receiver; highly resistant to spoofing

EMI/EMC Attack: LOW to MODERATE — Military-spec electronics with EMI hardening
Microwave Attack: MODERATE — EMI hardened but not immune; large airframe provides large antenna surface
Laser DEW: MODERATE — High altitude operation reduces exposure; but large slow target if engaged
Kinetic Intercept: HIGH — Large, moderate speed; vulnerable to modern SAM systems
Net / Physical Capture: N/A — Too large and fast
Cyber / Hack: LOW — Military-grade encryption and link security
Overall Vulnerability Rating: LOW to MODERATE

CRUISE MISSILE CONVERGENCE NOTES

The MQ-9 Reaper represents the apex of convergence — or rather, the point where the categories fully overlap. It navigates using GPS/INS (same as cruise missiles), carries precision guided munitions (same warheads as cruise missiles use), can be controlled via SATCOM beyond line of sight (same as advanced cruise missiles), and employs multi-spectral sensors for target acquisition. The ONLY remaining distinction from a cruise missile is recoverability. If you remove the landing gear and make it one-way, the MQ-9 IS a cruise missile. It is the platform that best illustrates how the engineering convergence is not theoretical — it is already complete. Unit cost: ~$32 million per system.

OPERATIONAL HISTORY

Iconic American UAV. Extensively used in Afghanistan, Iraq, Syria, Yemen, Somalia for persistent ISR and precision strike. Accumulated millions of flight hours. The platform that defined the modern “drone strike” in the public consciousness. Being replaced/supplemented by MQ-9B SkyGuardian and eventually MQ-Next (CCA program). Shot down by Houthi forces (2024) and Russia (over Black Sea, 2023), demonstrating that even top-tier military drones are vulnerable to conventional air defense.

SOURCES & CROSS-REFERENCES

USAF: https://www.af.mil/About-Us/Fact-Sheets/ (search MQ-9)
Wikimedia: https://commons.wikimedia.org/wiki/Category:MQ-9_Reaper

Cross-Ref: See: Bayraktar TB2 (lower-tier equivalent), BGM-109 Tomahawk (cruise missile comparison)